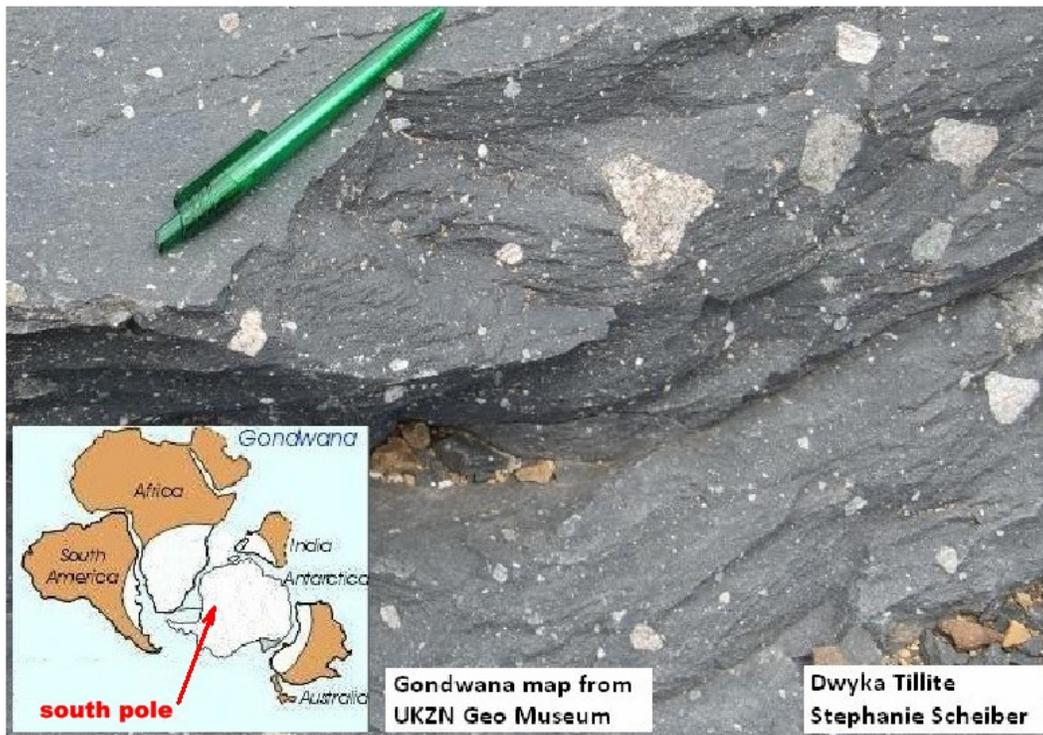


Dwyka Tillite proves continental drift

Hard as rock, but soft as clay.

At the time of Gondwana, 300 million years ago, South Africa sat near the South Pole. The massive fold mountains we see today, had formed during assembly of Gondwana, by continents pushing against each other. They were larger than the Himalayas today, and the land looked quite different. What we see today are much smaller mountains and an eroded landscape, shaped by water, and other forces, over millions of years. Sediment from erosion collects at the bottom of seas and later become "sedimentary rocks". So were the shaley rock layers of the Karoo formed. Dead animals and plants trapped in the sediments become fossils and their richness in the Karoo tell many other stories from the past. Fossils through transformation processes over millions of years provided the oil, coal and gas reserves relied upon to run our modern world, but that is another story.



The bottom-most layer of the Karoo is Dwyka, a dark grey softish sedimentary rock, seen in low lying parts, like near the Swartberg. In Dwyka time ice covered most of our great mountains. Ice on high ground slowly slides downhill in the form of glaciers, rivers of ice, until they reach the sea where they break up and drift away as icebergs. On their way down glaciers collect pebbly gravel and other debris that sticks to the underside. Once drifting away, as the icebergs melt, the pebbles drop to the ocean floor where they become imbedded in the forming sedimentary rocks. In Dwyka rocks today we see such pebbles, firmly embedded little white stones. White because they are ancient sandstone that transformed into quartz, much older than the parent Dwyka, from an earlier sedimentary cycle.

Here we have proof that South Africa once was near the South Pole covered with ice, and that as a continent it had drifted to where it is today. In this we also see the effect of the other great force that shapes and changes the face of the earth, the heat from a ceaseless nuclear fire, as hot as the sun, that rages in earth's molten core. We are shielded from the immense heat and nuclear radiation by earth material, layers of rock thousands of kilometers thick. The heat creeps outwards, cooling as it goes, but still, the near outer layers remain so hot they are like clay. Giant blobs, and they move around with great power, very slowly, pushing, forward, sideways, upwards, downwards, carrying parts of Earth's surface with them, in the processes of continental drift and geo-formation, while also creating mountains, volcanoes, earthquakes, and tsunamis. Hard as rock, but soft as clay.

By Pierre Joubert for APR, AJ, AMJ, CJD, KT, SJ and all other junior scientists 2015-11-17